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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/537,436

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Akira Aochi

050323

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10/19/2006

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EXAMINER

NGUYEN, CHAU N

ART UNIT

PAPER NUMBER

2831

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/537,436

Applicant(s)

AOCHI ET AL.

Examiner

Chau N. Nguyen

Art Unit

2831

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eck (4,867,691) in view of Hall et al. (5,980,336).

Eck discloses (Figures 1 and 8) a circuit board connector formed by cutting a conductive plate material provided with plating layers (32 and 34) on front and back side thereof, the connector comprising a main body portion (16), a first connecting portion (12) for connecting to a first circuit board, and a second connecting portion (14) for connection to a terminal connecting socket (H) of a second circuit board, the second connecting portion being positioned in the terminal connecting socket, wherein the second connecting portion of the connector is formed into a shape having an annular transverse cross section in such a manner that cut surfaces at both edges of the second connecting portion oppose each other, so that one of the plating layers may form an outer circumferential surface of the second connecting portion and be connected to the terminal connecting socket. Eck also discloses a gap being provided between the cut surfaces at both edges of the second connecting portion that oppose each other.

Eck does not disclose each of the plating layers being formed from gold, silver, copper, nickel, palladium or tin. Hall et al. discloses a connector (a terminal) which is coated (plated) with conductive plating which is formed from tin (col. 7, lines 64-67). It would have been obvious to one skilled in the art to use tin for each of the plating layers of Eck to protect the connector (formed of beryllium copper) against corrosion as taught by Hall et al.

4. Claims 1, 4, 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ward (3,764,955) in view of Eck and Hall et al.

Ward discloses (Figures 4-7) a circuit board connector formed by cutting a conductive plate material, the connector comprising a main body portion (70), a first connecting portion (74) for connecting to a first circuit board, and a second connecting portion (64) for connection to a terminal connecting socket of a second circuit board, the second connecting portion being positioned in the terminal connecting socket, wherein the second connecting portion of the connector is formed into a shape having an annular transverse cross section in such a manner that cut surfaces at both edges of the second connecting portion oppose each other, and an outer circumferential surface of the second connecting portion being connected to the terminal connecting socket.

Ward does not disclose the conductive plate material being provided with plating layers on front and back side thereof nor each of the plating layers being formed from tin. Eck discloses a circuit board connector comprising a conductive plate material being provided with plating layers on front and back side thereof. It would have been obvious to one skilled in the art to provide plating layers on front and back side of the conductive plate material of Ward as taught by Eck to enhance

conductivity and minimize resistivity of the connector. Hall et al. discloses a connector (a terminal) which is coated (plated) with conductive plating which is formed from tin (col. 7, lines 64-67). It would have been obvious to one skilled in the art to use tin for each of the modified plating layers of Ward to protect the connector (formed of beryllium copper) against corrosion as taught by Hall et al.

The modified connector of Ward also discloses a lead portion (68) provided between the main portion (70) and the second connecting portion (64), and the lead portion is subjected to a bending process for reinforcement (re claim 4), in the bending process, the lead portion is formed to have a C-shaped transverse cross section (re claim 5), the first circuit board being connected by the connector uprightly onto the second circuit board (re claim 9).

5. Claims 6-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ward in view of Eck, Hall et al. and Neff et al. (4,150,355).

Ward discloses (Figures 4-7) a circuit board connector comprising a first connecting portion (74) for connecting to a first circuit board and a second connecting portion (64) connected to a second circuit board, wherein the connector is obtained by cutting a conductive plate material, thereafter forming the second connecting portion so as to have an annular transverse cross section.

Ward does not disclose the conductive plate material being provided with plating layers on front and back sides, the plating layers being formed from tin, nor the cut surfaces of the second connecting portion being located inside the annular cross-sectional shape.

Eck discloses a circuit board connector comprising a conductive plate material being provided with plating layers on front and back side thereof. It would have been obvious to one skilled in the art to provide plating layers on front and back side of the conductive plate material of Ward as taught by Eck to enhance conductivity and minimize resistivity of the connector. Hall et al. discloses a connector (a terminal) which is coated (plated) with conductive plating which is formed from tin (col. 7, lines 64-67). It would have been obvious to one skilled in the art to use tin for each of the modified plating layers of Ward to protect the connector (formed of beryllium copper) against corrosion as taught by Hall et al.

Neff et al. discloses a connector (Figures 2-3) comprising a connection portion having an annular transverse cross section with the cut surfaces being located inside the annular cross-sectional shape. It would have been obvious to one skilled in the art to modify the second connection portion (64) of Ward to have the cut surface being located inside the annular cross-sectional shape such that if

needed, a small wire can be connected to the opposed edges of the cut surfaces as taught by Neff et al.

The modified connector of Ward also discloses a lead portion (68) provided between the main portion (70) and the second connecting portion (64), and the lead portion is subjected to a bending process (re claim 7), in the bending process, the lead portion is formed to have a C-shaped transverse cross section (re claim 8), the first circuit board being connected by the connector uprightly onto the second circuit board (re claim 10).

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1 and 6 have been considered but are moot in view of the new ground(s) of rejection.

Regarding the Neff et al. reference, applicant argues that Neff et al. is directed to an electrical splice and not a circuit board connector. Examiner disagrees. Although the connector of Neff et al. is used for splicing a wire wound resistor, Neff et al. in fact teaches an electrical connector. Neff et al. is relied upon only to support the position of bending the two opposed edges of the connecting portion inside the annular cross-section shape such that the connector can be



connected to a small wire, Neff et al. does not have to disclose the connector being used as a circuit board connector.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chau N. Nguyen whose telephone number is 571-272-1980. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-2800 ext 31. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Chau N Nguyen  
Primary Examiner  
Art Unit 2831